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Perfect Control and Coordination —
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ASA

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Standardization—The Key to Coordination

Streamlined Management Pays High Dividends

by
John Gaillard

Mechanical Engineer
American Standards Association

A DEEP roar in the air—eyes scan the sky. Three times three airplanes are passing in V-formation. The groups dissolve—the planes line up, their wings almost touching. They take a steep dive and zoom up again, seemingly strung on a single string. Perfect control and coordination result in graceful, harmonious motion.

A plant manufacturing automobile frames—10,000 a day. Some 125 parts with correct sizes come together in the right position, at the right time, to be assembled into a complete unit. More than 100 tons of steel pass by each hour and a half—to be straightened, formed, aligned, fastened together, cleaned and painted—a flow of frames, one every 8 seconds. But in a few hours that flow can be changed to produce a different type of frame. Close control and coordination mark the entire process—which yet is flexible in all its strictness.

A movie theatre showing the latest film hit. A young couple driving in a light carriage through a majestic mountain range. The sun is bright and they chat cheerfully—a scene of charming harmony. But the landscape was "shot" 3000 miles away from the studio where it was thrown on a translucent screen as a background for the action. Coordination through complete control of all factors—optics, acoustics and synchronism—has governed the making of this talkie. The human element is the attractive feature in this story: individuality, change, action. But the very flow of life is reproduced here by a series of pictures and a sound track caught on a sensitive strip manufactured, exposed, developed, printed and run off by highly standardized, and in part even mechanized, processes.

Some time ago a musician, an artist, and an engineer were philosophying about the merits of the old times. Was the handicraftsman in the Middle Ages happier than the modern factory worker? Did not the craftsmen have more pride in his work and get more satisfaction out of it?

The artist claimed that there was something deadening in mass production of modern goods.

And the musician, while liking the soft purr of his new car, was somewhat bitter about modern factory methods. He had read something about time and motion study applied to industrial

operations. This tended to make machines out of men, he thought.

"Yes, they have gone very far in that direction," said the engineer. "Not so long ago I watched for several hours a group of some hundred men doing teamwork coordinated to a small fraction of a second."

"Don't you call that a shame?" exploded the musician.

"That depends just on how you look at it." was the reply. "The Philharmonic Orchestra seemed thoroughly to enjoy it and even appeared to be quite enthusiastic about its chief coordinator—Arturo Toscanini."

Tuning to a Standard

A symphony orchestra is one of the most splendid examples of what coordination can achieve when driven by the impulse of enthusiastic cooperation. But harmony can be attained only by adherence to several standards. Basic is the standard pitch to which all instruments must be tuned. Then, there is the score—the "specifications" to be followed by the orchestra. On these two standards, the conductor superimposes the stamp of his personal conception of the work interpreted—which conception is, in a way, his own "standard." As conductors change, this individual standard varies, while those of pitch and score remain the same.

In general, any well balanced system of standards, whether artistic or industrial, is built like a tree—a trunk of considerable strength and rigidity branching out ultimately into the more flexible twigs and the colorful leaves—which change with the seasons.

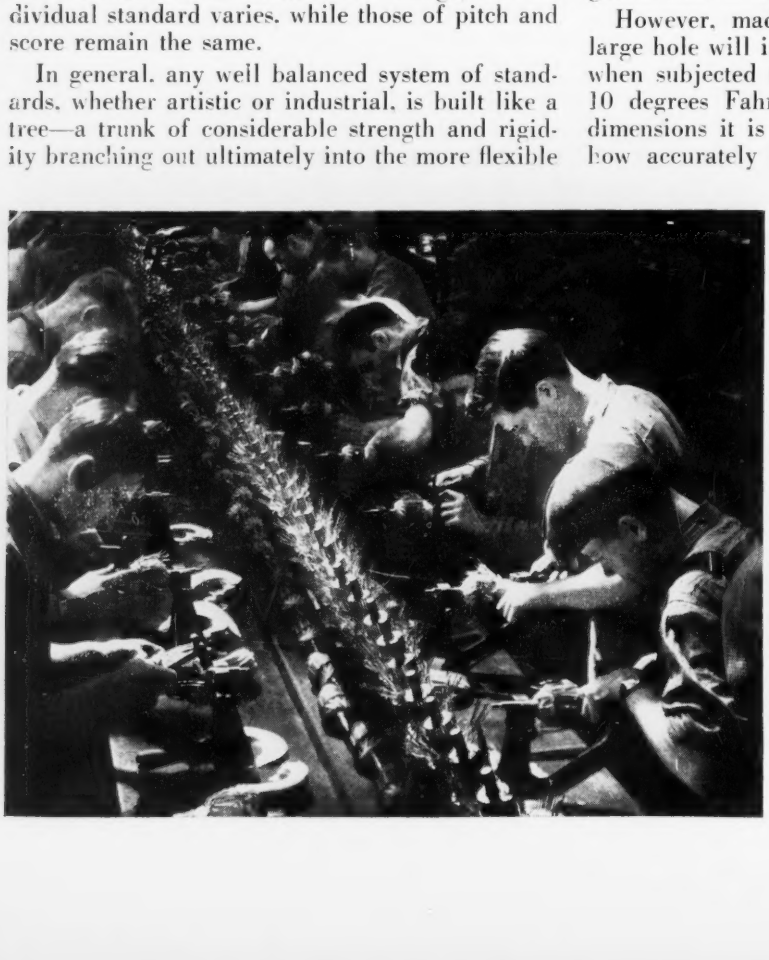
Successful achievements in modern industry are carried by coordination, and hence by standards, just as is the performance of a symphony orchestra. In an automobile factory, parts flow rhythmically together into sub-units, these into units, and the latter again into complete cars. Back of this constant flow is again an elaborate system of standards. They range from basic ones valid for long periods—such as those for screw threads and steel—to temporary ones applying to a special order—a given color scheme for the body, for example.

Close Control Counts

To be able to flow together, in the assembling process, the component parts of an automobile must fit readily and accurately—there is no time for correction. Hence, the parts are held very closely to specific dimensions. The cylinder bore of an engine will not be permitted to vary more than, say, 0.0003 inch. What does this mean? Let us magnify this bore until its diameter is 1250 feet—the height of the Empire State building. To be finished with the same degree of accuracy as the automobile cylinder, the diameter of this gigantic hole must not vary more than one inch.

However, made in cast iron or steel, such a large hole will increase in size by about one inch when subjected to a rise in temperature of only 10 degrees Fahrenheit. In specifying standard dimensions it is not sufficient, therefore, to state how accurately the cylinder bore or any other exacting automobile part should be finished, it must also be stated *at what temperature* its size shall be acceptable.

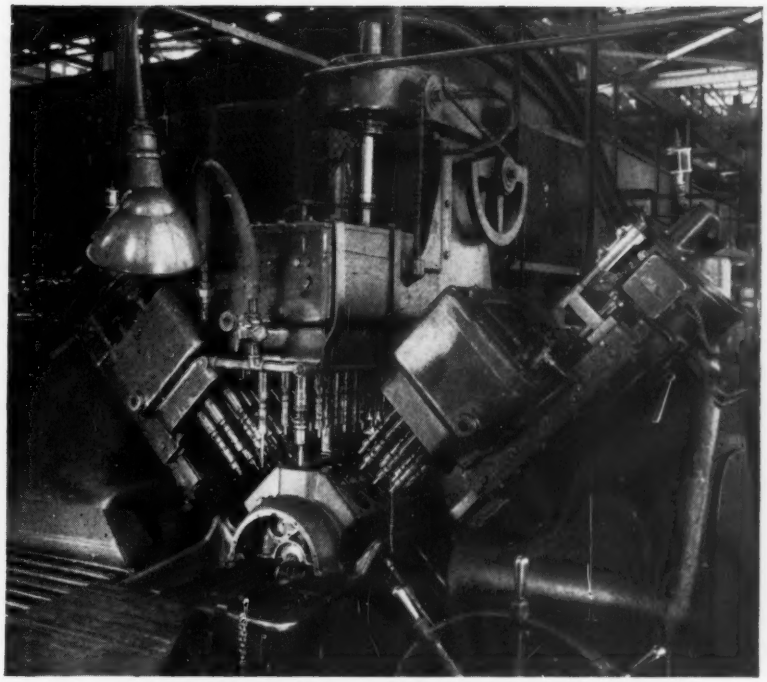
To have a common basis of comparison, 68 F has now



Assembling Armatures of Generators for Automobile Engines

"Parts flow rhythmically together into sub-units, these into units, and the latter again into complete cars."

been adopted all over the world as the "reference temperature" for industrial measurements. Just as the orchestra has its "standard pitch," the manufacture of interchangeable parts has been tuned to one standard temperature governing industrial measuring instruments, such as limit gages. The general adoption of this temperature is one of the factors that permit you, when touring abroad, readily to replace an American ball bearing in your car, say, by a Swedish one. Without this universal tuning, the fine industrial measurements of length, nowadays refined to terms of millionths of an inch, would only be a dream.



Three Spindle Units Tackle V-8 Engine

Getting Things Done

The need for coordination is not confined to technical standards. Continuous flow production demands that each component arrive at the right spot, at the right time. The visitor of an automobile plant marvels at the planning that must be going on behind the scene. How else would these red wheels descend on the conveyor exactly at the moment the yellow roadster for which they are intended is passing by, while a few moments later the black sedan, which is next, receives its blue-rimmed wheels?

In the matter or routing materials and components through a factory, there exists the same need of standards established in terms of time and space, as there is, in the technical field, for dimensional and material specifications relating directly to the product manufactured.

It is not sufficient to specify *what* is to be done, and *how*. There will be no smooth flow of activities unless the *when*, *where* and *by whom* have also been determined. In an engine, the several parts and units are given specific tasks. The cylinder and piston transfer heat into push. The connecting rod and crankshaft convert straight-line motion into rotation. And so on. In the same way, effective management assigns tasks and responsibilities to individual workers and groups. Their activities must fit together, if cooperation is to be successful. Their minds must meet, and mutual understanding can be based only on specific, complete and clear-cut orders and instructions—with appropriate tolerances for inevitable shortcomings and errors. Such standards of management form the framework supporting individual efforts—and lack of such standards cannot be entirely overcome even by the finest *esprit de corps*.

"The machine itself, for long times a symbol of stubborn uniformity in performance, has become flexible."

Human Engineering

The design of a piece of machinery and the building up of an organization show many points of similarity. Well-chosen proportions of the components, suitable materials, and tolerances close enough to secure accurate fitting together, make for a smoothly running machine as well as for an effectively managed organization.

It is not surprising, therefore, that the systematic development of scientific management has been given its greatest impulse by an engineer—Frederick W. Taylor. But his philosophy which meant to supply the strongest possible framework of standards to support human efforts that cannot yet be measured or standardized—has often been misunderstood. It has been taken to aim at running the human part of an organization with the same degree of inexorable precision shown by a machine made of metal. It was forgotten by many would-be followers of Taylor that machines

have been devised by man to save labor or to do something he could not do with his hands—but not to act as a pace-setter for human labor, either in speed, force, accuracy, uniformity of result, or continuity of effort. This misconception has done much harm to the cause of scientific management and to standardization as one of its main tools. True, the performance of a machine is marked by great uniformity. But standardization should not aim at uniformity for its own sake, it should establish uniformity only in those matters that control the connections between cooperating units or groups. Here, the analogy with a machine is obvious again. The most exacting dimensions of an automobile crankshaft are those where it contacts with such parts as the connecting rods and the main engine bearings. Only where fits occur, is it necessary to restrict freedom in dimensions.

Flexible Strictness

This principle has become so well understood that during the last ten years it has led to "unit design" of machine tools and other production equipment. To keep these machines flexible, with a view to different needs of manufacturers at the present time as well as with a view to the possible need for future changes, they are built up of self-contained units. These units can be interchangeably connected in different ways, but their internal construction may vary. A change in the product manufactured by the users of such machines may thus often be met simply by rearranging the units. Or, most of the existing equipment may be used again, with some new additions. Thus, the machine itself, for long times a symbol of stubborn uniformity in performance, has become flexible. This development is symbolic of the modern conception of the functions of standardization: to establish temporary stability for the sake of coordination during a certain period, but to maintain the greatest possible flexibility in regard to changing to a new position of stability when conditions call for it.

In accordance with this principle, the different departments of an organization should be connected by strict coordination where they have joint interests. Otherwise each should remain free to put its own house in order. While the Sales Department cares a lot what the Engineering Department designs—because this is what "Sales" will have to sell—it does not care a bit whether a given part is made on a lathe or on a grinder However, such a question may be a matter of great interest to the Manufacturing Department and require discussion between the latter and the Engineering Department—just as many other subjects enter the problem of actually making the product.

What Tolerances?

Means for harmonizing the relations between designers and production men, for example, would be one of the most profitable investments in many manufacturing concerns. Designers have a tendency to keep manufacturing tolerances close. Production men naturally want them large. This difference in viewpoint leads to countless trips between the departments concerned—including the Inspection Department—to straighten out many things that should have been settled from the outset by the drawings. Coordination in this respect will not only save the waste in time and effort involved in the process of adjustment, the very existence of the company may depend on it. For the setting of too close tolerances is a common source of direct loss in dollars.

A large American corporation was founded to manufacture a product for the household. The product contained twenty component parts specified to be within a tolerance of 0.0002 inch. Machinery worth several millions of dollars was purchased and manufacture started. Then it appeared that the tolerances specified could not be maintained and the resulting deadlock could be solved only by expert re-design of the product. Two of the major units kept their original tolerance of 0.0002 inch; on the others the tolerance was increased to 0.0005 inch. From then on the business became profitable, but a very heavy loss had to be overcome. This could have been avoided by proper coordination between engineering and production design in the early stage.

Start It—Somewhere!

The need of coordination goes around in a circle. It affects all of the branches of an industrial concern. To attain perfect harmony between their activities, a Central Coordinating Department, responsible only to the executive management and reporting directly to it, should have a task similar to that of the orchestra conductor. The organization of such a central department cannot be discussed here in detail. Its set-up depends largely on the nature of the organization which it is to serve.

It is often difficult to decide where to start coordination. This is true also for that one form of business coordination—technical standardization. Taylor recognized this when he said, referring to scientific management: "To decide where to begin is a perplexing and bewildering problem."

Here again, the analogy between a machine and an organization is interesting. While certain rules can be laid down to guide the designer of

machinery, the essential value of a design depends on something that cannot be standardized—talent and skill. In this respect, the designer is in the same class with the composer or the artist whose genius transcends what he may have learned about the technique of writing music or of painting a canvas.

Coordination of industrial management also is a question of "design," the design of an organization. This requires special training and experience. The staff and personnel of an industrial concern, while quite expert in the manufacture of its product, will probably need special training in the technique of standardization work. A football team, while having at its disposal plenty of brawn and brain, will be most successful under a good coach.

Standardization Pays

Every company should see that *somebody* in the organization studies the possibilities of standardization. Very often, this matter is given but scant attention, or none at all. When times are good, everybody is too busy in manufacturing and selling. In slack times, expenses are curtailed and standardization, if used, is put into cold storage. Yet, it is an excellent investment.

Some years ago, a man intimately acquainted with the machine tool industry commented on the attitude of some prospective buyers who insisted that new equipment pay for itself within a period as short as one year.

"Where do we find a sound investment that pays 100 per cent interest?" he asked. "If anybody knows, I wish he would tell me."

Now, if we consider standardization as a piece of equipment that does for management in general what labor saving machinery does in manufacturing, then we can say: "Here is a chance to make high dividends, even 100 per cent or more."

Evidence Wanted?

A firm manufacturing looms cut down needless variety in component parts and standardized what was left. The average reduction in variety of 15 items was 40 per cent. The number of nuts was reduced by 56 per cent, and this alone paid for 40 per cent of the appropriations for the standardization work. In seven months, the total savings made amounted to *three times the annual cost* of this work.

Twenty-four different kinds of metal cleaners were used by a large company, at an average total cost of $100,000 a year. Standardization reduced the variety to four kinds and cut the price in half. Did it cost $50,000 to make this saving? Certainly not. And the expense was made only once, while the saving is still going on.

A company manufacturing motor trucks saved more than $20,000 a year by adopting standards for grinding wheels used for specific jobs. A wheel that is too soft, wears too soon. A wheel that is too hard, becomes too rapidly "loaded," that is, clogged with abraded particles which impair its cutting action.

This was only one item in a comprehensive standardization program involving the introduction of a number of American Standards. In one year this company saved more than twice the total salaries paid the staff of its standardization department. And it stated explicitly that the savings in dollars shown on the books represented only part of the picture. Far more important were the benefits derived from the ability to make replacements readily and to give customers quicker and better service.

The advantages of standardization speak for themselves. Profitable order is created out of wasteful chaos. Once started, a well organized standards department in a company will pay for its own way—and more than that. It will yield a profit. This is fortunate, because its activities are bound to increase constantly as there is practically no end to new possibilities of coordination.

First, there is the need for harmony between the departments of the company. Next, the company's activities must be coordinated with those of other firms in the same industry, possibly under the auspices of a trade association. Finally, standardization in a nation-wide way is necessary in order that the company may have a direct contact with the developments of the work done under the procedure of the American Standards Association, the national clearing house in this field. Possibly the company may also benefit by the efforts toward international unification made by technical committees of the International Standards Association (ISA), with a membership including the national standardizing bodies in twenty countries, the United States being one of these.

Start It—Now!

The main difficulty in undertaking standardization work is *to start it*. Somebody in the company should study its possibilities and make recommendations to the executive management. And then—*something should be done about it*. For standardization, just like mechanical labor saving equipment, does not install itself.

We may well apply to standardization the slogan used not so long ago by a manufacturer of tractors: "You can't do today's work with yesterday's equipment, if you expect to be in business tomorrow." No management of an up-to-date industrial concern can afford to neglect standardization—the key to the coordination of its affairs.

Industry Accepts Three Simplified Practice Recommendations on Ice Cream Containers

Three Simplified Practice Recommendations for ice cream containers have been given the required degree of acceptance by the industry and will become effective July 1.

Two of these recommendations — Ice Cream Brick Molds and Cartons, R120-36, and Ice Cream Cups and Cup Caps, R132-36—are revisions of earlier editions; the third—Tinned Steel Ice Cream Cans, R164-36—is a new recommendation.

The revised recommendation for ice cream brick molds and cartons includes recommended sizes for the pint and quart linerless machine-filled type of cartons, as well as for the two-gallon ice cream brick mold, and the pint and quart cartons.

Until printed copies of these recommendations are available, mimeographed copies may be obtained gratis from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

A.S.T.M. and American Railway Engineering Association Move to Harmonize Standards Work

Plans for closer coordination of the standardization activities of the American Railway Engineering Association and American Society for Testing Materials have been carried out during the past year. The A.R.E.A. has appointed representatives on ten committees of the Society, these representatives having been selected from the A.R.E.A. committees most directly interested in the field covered by the respective A.S.T.M. committees. In this way A.S.T.M. committees will be directly informed of the views on materials specifications and tests of the A.R.E.A. committees responsible for similar work in their own organization, and will be in still better position to provide requirements in A.S.T.M. standards that will meet the needs of the railroads. The operation of this plan will greatly facilitate the harmonizing of essential requirements in A.R.E.A. and A.S.T.M. specifications. The two societies are also cooperating in several sectional committee projects under ASA procedure.

Societies Define Fields For Standards Activities

Agreement has been reached between the American Society for Testing Materials and the American Concrete Institute to eliminate overlapping in standardization work done by the two organizations.

The American Concrete Institute is to handle all matters relating to design, fabrication and construction of concrete structures, recommended practices for manufacture of concrete products, standards of shop practice, procedures for construction practice in concrete, engineering and architectural design, etc.

The American Society for Testing Materials will develop standard specifications and tests for concrete.

In line with this decision, the A.S.T.M. has discontinued Committee C-2 on Reinforced Concrete and its Tentative Rules for Inspection of Concrete and Reinforced Concrete Work, which had been formulated by this committee.

The scope of the American Society for Testing Materials' work on concrete according to the new agreement has been outlined as follows:

1. Development of methods of test for concrete and concrete products and for the constituent materials of concrete, as well as for certain related materials such as materials used in curing.

2. The development of standard specifications for the constituent materials of concrete and for concrete itself (subject to mutually satisfactory interpretation of the term "concrete") and for manufactured concrete products such as masonry units, pipe, tile, etc.,—so-called "over-the-counter" materials or products as distinguished from actual field construction of concrete.

In border-line cases, where considerations of design and construction are intimately tied in with the problems of tests and specifications, the secretaries of the two societies will confer and initiate conferences when this seems desirable.

ASA Committee Helps Commission Compile Standard Electrical Terms

A glossary of important power and rate terms, abbreviations, and units of measurement has been compiled by the Federal Power Commission with the assistance of the Sectional Committee on Electrical Definitions C42 of the American Standards Association. The glossary will provide uniform terminology for the reports, documents, and correspondence of the Commission. It is not intended to prescribe standards for the electric utility industry.

"Thousands of reports received by the Commission from both publicly and privately owned electric utilities indicate that a great diversity prevails in the use and meanings of various well-known terms relating to electric power and rates," the Commission says in announcing the glossary. "A considerable amount of correspondence between the Commission and utilities was necessitated by these interpretative differences."

Many different abbreviations were found for the same words or designations during the preparation of the glossary. One statistician discovered 42 different ways in which 'kilowatt-hours' is abbreviated, each of which appeared in print.

Because of the scarcity of complete, competent, and convenient tables for converting one unit into another, a list of conversion factors is included. All of the conversion factors listed were checked for accuracy by the National Bureau of Standards.

The Sectional Committee on Electrical Definitions, in cooperating with the Federal Power Commission, made available its draft standards and did special work in order to complete draft standards for use by the Commission.

The glossary consists of definitions of 184 terms, 196 abbreviations, and 151 units of measurement.

Copies may be obtained from the Superintendent of Documents, Washington, D. C., at five cents each.

ASA Committee on Electrical Definitions That Assisted the Federal Power Commission

An ASA Sectional Committee representing the following 33 organizations assisted the Federal Power Commission in its recent work on abbreviations and units of measurement.

American Institute of Electrical Engineers
American Association for Advancement of Science
American Institute of Consulting Engineers
American Mathematical Society & Mathematical Association of America
American Physical Society
American Society of Mechanical Engineers
American Society for Testing Materials
American Transit Association
American Welding Society
Association of American Railroads—Engineering Division—Electrical Section
Association of Railway Electrical Engineers
Bell Telephone System
Canadian Engineering Standards Association
Electric Light & Power Group
Electrochemical Society, Inc.
Elevator Manufacturers Association of New York
Illuminating Engineering Society
Institute of Radio Engineers
International Telephone and Telegraph Corporation
National Academy of Sciences
National Battery Manufacturers Association
National Electrical Contractors' Association
National Electrical Manufacturers Association
National Fire Protection Association
National Research Council
National Safety Council
Society of Automotive Engineers
Society for Promotion of Engineering Education
U.S. Department of Commerce, Nat'l Bureau of Standards
U.S. Department of Interior, Bureau of Mines
U.S. Independent Telephone Association
U.S. National Committee of I.E.C.
U.S. Navy, Department Specifications Section

China Bans Old-Style Weights and Measures

To end the use of old-style weights and measures in China the government holds public burnings of instruments which do not conform to the newly adopted metric system, reports the Associated Press.—*New York Times, June 14.*

The Answer Is Yours

Telephone, wire, or write the ASA Library about foreign and American Standards

How 15,000 specifications are kept ready for your immediate reference

IMMEDIATE answers to thousands of questions about standards and specifications from more than twenty countries are available from the library of the American Standards Association.

For more than ten years the Association has been collecting, classifying and indexing a library of 15,000 standards, and has established an effective clearing house of this information.

Suppose your morning mail brings an invitation to bid on a pending government contract. Your company needs the business, and you try to fill in the complicated forms quickly, but there is a paragraph that reads—"in accordance with Federal Specification number DDD-B-421a"—and no copy is attached to the forms. If you call the library of the American Standards Association, the librarian will read you passages from the Federal specification and will mail it to you by first class mail if you need it. A telegram or a special delivery letter will bring you any standard that you need by return mail, or by air mail if necessary.

Perhaps your invitation to submit a bid is from a customer in Great Britain and the requirements read—"in accordance with British national standard number 148-1933"—and that the bid cannot be considered unless it is returned on a steamer sailing a week hence. The library of the American Standards Association will give you exactly the same service. The cost of some small pamphlet will be only a fraction of the cost of a cable to Great Britain for the identical information, which probably could not be given to you in a reply cable, but would involve the delay of sending the pamphlet on the next steamer.

A complete set of all existing standards for paraffin wax, for cement, for anthracite coal, for electric fuses, or for canvas and duck cloth is available from the ASA library. If you want inch-millimeter conversion tables, rules for electric wiring in Germany, test pressures for pipe in Great Britain, tables of preferred numbers from France, the International standards for ball bearings, or the weight per foot of two inch rope, your questions can be quickly answered from the many standards on file in this library which serves 1,500 Company Members of the ASA and does as much work as time permits for anyone bringing to it any questions in the standardization field. Five sample questions serve to illustrate the wide variety of information supplied:

Are there any standard methods of test for Indian jute yarn?

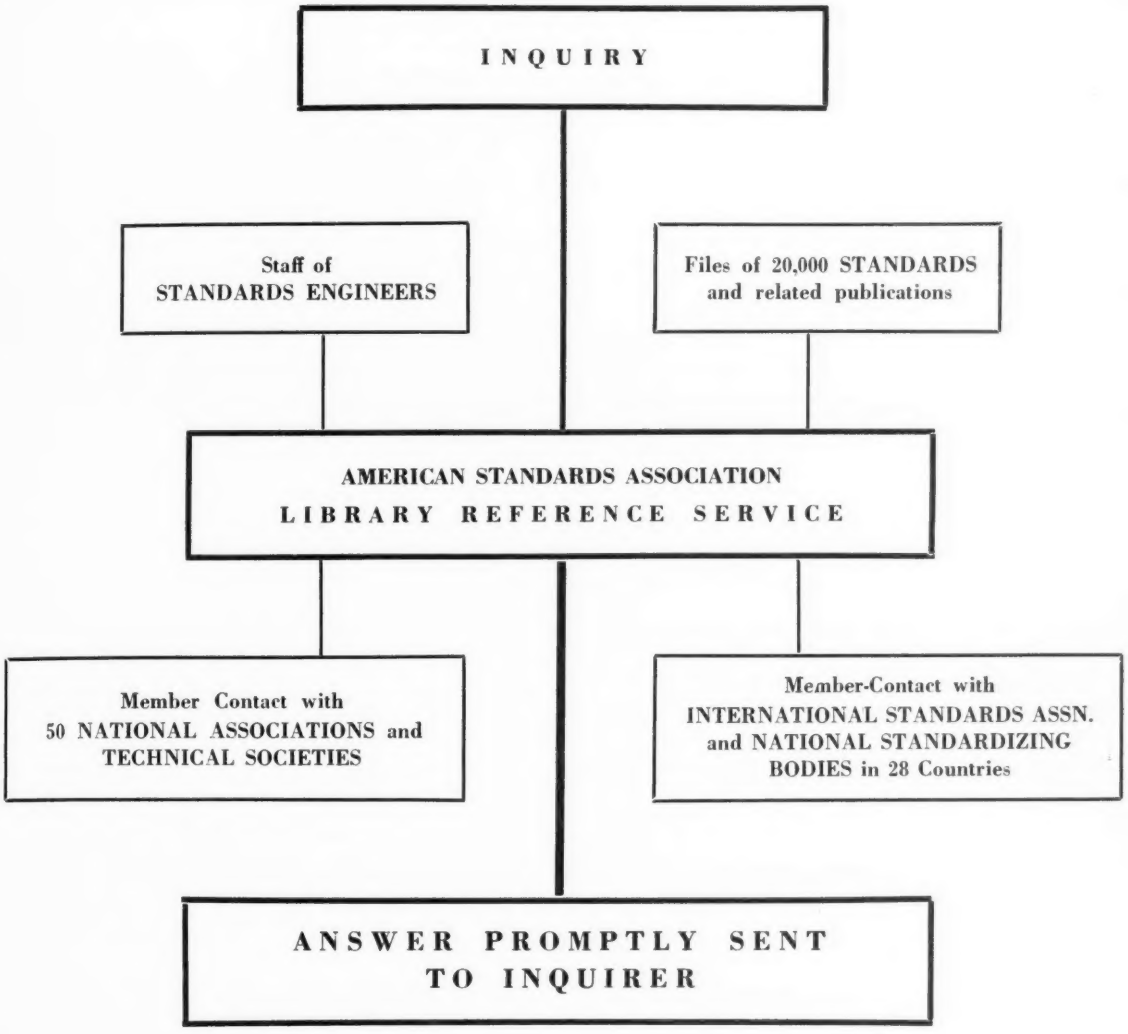
Can you supply German and Swedish national standards for circuit breakers and transformers?

How much does a standard sheet of number one tissue paper weigh?

Are there U. S. Government specifications for bunker oil?

Does the standard for rubber gloves for electrical workers provide for the destruction of gloves that do not pass the test?

A simple loan form letter is used by the ASA library to replace the conventional card in use by public libraries and all possible red tape is elimi-



The organization that makes prompt answers to your inquiries possible

nated in connection with borrowing standards which may be kept from one to three weeks. In exceptional cases loan periods are extended even to three or four months. If your company is preparing a standard for its own use, if a contract is about to be awarded, or if a bid is under consideration, then you may borrow all available material from the ASA, and if these borrowed standards happen to be the ones appearing on single sheets it is often possible to have photoprint copies made within the company at a low cost so that the files may be complete.

Standards are borrowed for a great many purposes:

1. To serve as the basis of a company standard for use in purchasing definite materials.
2. To reduce manufacturing costs.
3. To control the quality of manufactured products.
4. To effect economy and efficiency in plant management.
5. To use in courts in certain types of legal cases.
6. To fill orders for export trade.
7. To describe material purchased.

The borrowing of standards is encouraged because library material is only useful when it is in service, not when it is stored on shelves or in drawers.

When a company pays the ASA library 35 cents for a German standard sheet of pipe flange tables,

this amount covers the cost of the material, but not the cost of storing, indexing, and keeping available some 8,000 German national standards, in addition to thousands from other countries and from the United States. This additional cost is covered through Company Memberships in the American Standards Association; and this is the reason that it is not always possible for the service to do as much for outside firms as it would like to do.

The ASA library is the only place in the United States where foreign standards may be either borrowed or purchased. It is, however, considerably more than a source of supply for would be borrowers and purchasers of foreign or domestic standards. Through its contacts with ASA staff engineers as well as with some fifty national associations and technical societies among the ASA membership, through contact with the International Standards Association, and with the National Standardizing Bodies of 26 countries, the library service has become a national reference bureau for information on standardization matters.

It serves the technical committees developing American Standards. Through the Special Libraries Association it cooperates with other technical libraries. It is called upon constantly by the trade associations and technical societies who are ASA members. It also serves some fifteen hundred company members of the ASA engaged in the production of everything from steel girders to ladies knit underwear.

Wider Use of Standard Brushes For Rotating Electrical Machinery Expected From Approved Dimensions

by

C. M. Cogan

Director, Engineering Department
National Electrical Manufacturers Association

Approved American Standard Promotes Common Understanding by All Concerned

Gives Thickness and Length for Each Width; Permits Selection of Size to Fit Design

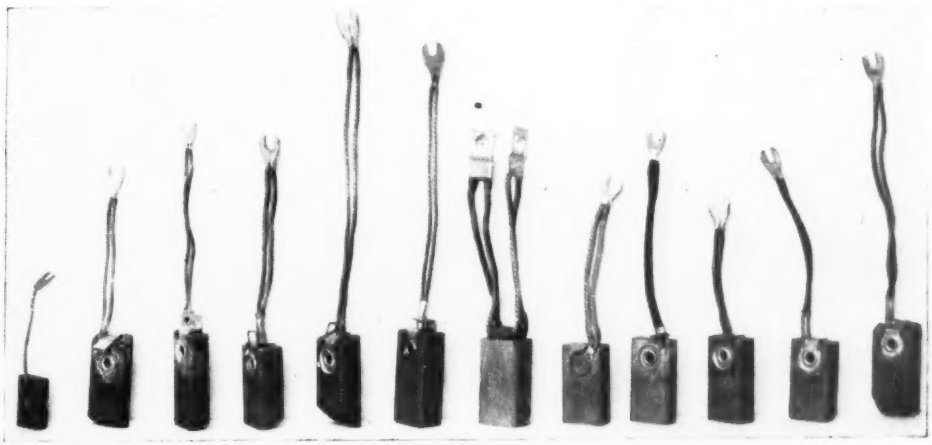
THE American Standards Association recently approved the NEMA Standards for Carbon, Graphite, and Metal-Graphite Brushes as an American Recommended Practice. This will be published by the ASA very soon.

Brushes are produced in several varieties—each intended for a particular application, but all serving to accomplish the important function of providing the necessary path for the current to flow to or from the rotating member of an electrical machine. Examples of such use of brushes are found in: d-c motors and generators; a-c motors and generators; synchronous motors; and wound rotor induction motors. In these machines, although brushes are a small part, they serve an extremely important function.

Each machine, on which brushes are used, exacts from them particular requirements:—size,

electrical resistance, current-carrying capacity, and commutating ability. The size, as well as other requirements, is dependent upon the machine design which, generally speaking, comes first. When the design of a machine is complete, brushes having proper dimensions and characteristics are obtained from the brush manufacturers. Numerous independent designs from individual machine designers quite naturally have resulted in many varieties of brushes. Then, too, rotating machines became more complex, their requirements more stringent and their application wider, all of which caused a tremendous increase in the varieties of brushes. The need of standardization became only too apparent.

Courtesy General Electric Laboratories



Various sizes and types of carbon brushes with shunts attached

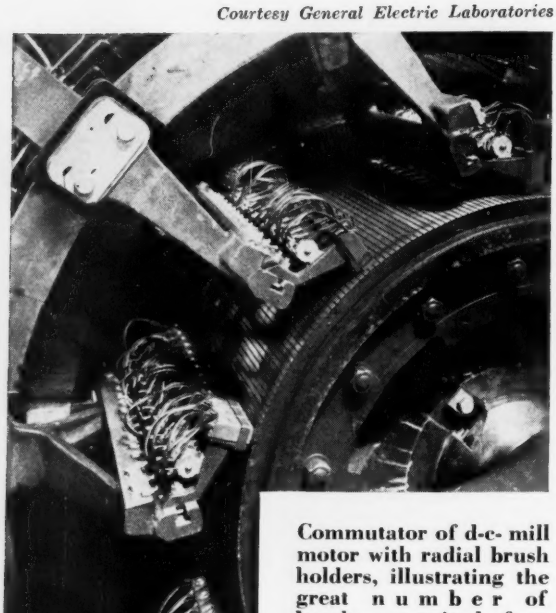
The initial move in the direction of standardization was made by a group of motor manufacturers in the Electric Power Club over twenty years ago. At that time, a series of lengths, widths, and thicknesses for brushes was formulated. However, these dimensions were not related one to the other; thus, no width or thickness was associated with a given length. Hence, the number of possible combinations became great. The present work, which definitely ties together all three dimensions, may be regarded as an evolution of the early standardization.

Later, the Carbon Section, consisting of manufacturers of carbon, graphite, and metal-graphite brushes, was formed within the National Electrical Manufacturers Association and took over the development of these standards. The Section worked in close cooperation with numerous manufacturers of electrical apparatus employing brushes; such as, manufacturers of a-c and d-c motors and generators; motor-generator sets; fan motors; welding motor-generator sets; and mining and industrial locomotives. All of these are members of the National Electrical Manufacturers Association and represent a large proportion of the manufacturers of rotating electrical apparatus. Finally, after much deliberation and investigation extending over a three-year period, the National Electrical Manufacturers Association brought out a revision of the original treatise, which was recently approved by the American Standards Association under the existing standards method.

New Standards Set Up Definite Sizes

The present American Standard for Brushes sets up definite dimensions; for each width there is a series of corresponding dimensions for thickness and length. All dimensions are spaced sufficiently close together to make it possible for the machine designing engineer, no matter how meticulous, to select the size of brush to fit his design. Also, as may be expected, tolerances are set up for these dimensions. In addition to the information on brush sizes, data is contained on sizes for shunt cables and terminals. The user, by the use

Courtesy General Electric Laboratories



Commutator of d-c- mill motor with radial brush holders, illustrating the great number of brushes required for large-size motors

of the standards for sizes and tolerances, is enabled to select brushes from any manufacturer with certainty of a proper fit.

Provides Common Language

It is not difficult to imagine that an industry such as the brush industry, which has grown largely by independent requests from individual machine manufacturers, should need terms understandable to all concerned to provide common understanding. A section is included, therefore, on brush nomenclature and definitions for associated parts, such as, shunt cables and lifting clips, all of which are amplified by illustrations.

Briefly, the standard constitutes a useful guide in the selection of brushes, and a reference work of practical information. It represents the standard practice in the United States and should prove a definite aid in promoting a wider application of standard brushes to electrical rotating machines, as well as a better common understanding within the industry.

Millions of Brushes Needed For Nation's Electric Motors

Millions of brushes a year are used to keep the electric motors and generators of the nation running. These tiny brushes—the largest not over 3 in. in width—are the means by which electric current reaches the moving part of most electrical machines. Several hundred brushes are sometimes used in large d-c motors operating steel mills or in low-voltage d-c generators. Only two may be used in the motor of an electric fan or an electric mixer.

Standards for these essential parts of an electrical rotating machine make it possible for designers and manufacturers to select the type and size of brushes needed for their particular type and size of motor without unnecessary trouble and expense.

The newly approved American Recommended Practice (identical in its provisions with Simplified Practice Recommendation R56-35 issued by the Division of Simplified Practice, National Bureau of Standards) was prepared and submitted to the American Standards Association by the National Electrical Manufacturers Association.

The standard sets up for each width of brush a series of corresponding dimensions for thickness and length and gives diagrams and descriptions of the various types of standard brushes.

Revise List of Blanket Sizes in Simplified Practice Recommendation

Two sizes of bed blankets are eliminated and one size is added in a revision of Simplified Practice Recommendation R11, Bed Blankets, which will become effective September 15, according to an announcement of the Division of Simplified Practice, National Bureau of Standards.

The original recommendation established a simplified schedule of 12 sizes of bed blankets, ranging from 54 x 76 inches to 80 x 90 inches.

Until the recommendation is ready in printed form, mimeographed copies may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C., without charge.

Underwriters Issue New Standard For Electrical Service Equipment

A new standard for electrical service equipment has been prepared by the Underwriters' Laboratories to take effect January 1, 1937. This standard will be used in testing all electrical service equipment submitted to the Laboratories for approval after that date. Until January 1, 1937, equipment submitted may be judged under the new standard or under the Laboratories' present requirements for service equipment.

The requirements of the standard are based upon records of tests and field experience and are subject to revision as further experience and investigation may show this to be necessary or desirable.

Copies are available from Underwriters' Laboratories, 207 East Ohio Street, Chicago, or from the Chicago and New York offices.

Standard for Pipe Plugs Brought Before ASA for Approval

A proposed standard for pipe plugs, giving dimensional specifications, has been submitted to the American Standards Association by the American Society of Mechanical Engineers.

The standard is for pipe plugs of cast iron, malleable iron, cast steel, and forged steel for use in connection with fittings covered by the American Standard 125 lb and 250 lb cast-iron screwed fittings and the American Standard 150 lb malleable iron screwed fittings.

The committee which developed the standard is under the administrative direction of the Heating and Piping Contractors National Association, the Manufacturers' Standardization Society of the Valve and Fittings Industry, and the American Society of Mechanical Engineers.

Uniform Traffic Laws Are Goal Of New York State Commission

Uniform traffic laws and signals will be major objectives of the new State Traffic Commission, created by the 1936 New York State Legislature.

"We are determined to remove all traffic hazards and eliminate accidents in our State," Charles A. Harnett, chairman of the commission, said. "We will make a survey of all highways, attempt to establish a uniform set of traffic laws, and create uniform regulation of traffic lights and signals."

Lecture Series on Industrial Standardization

THE engineering and management aspects of Industrial Standardization will be taken up in a series of eight lectures illustrated by lantern slides to be given during the next two months by Dr. John Gaillard, as announced in INDUSTRIAL STANDARDIZATION, for August. Dr. Gaillard, an industrial engineer, is a member of the staff of the American Standards Association. He is author of the book, *Industrial Standardization, its Principles and Application*, which appeared in 1934; and a member of the American Society of Mechanical Engineers and the Society for the Advancement of Management.

An outline of the individual lectures, each of which will be followed by thirty minutes general discussion on the subject of the evening, is given below.

First Lecture (Oct. 7)—**The essential functions of standardization: stabilization and coordination. Following industrial progress by means of a system of well chosen and periodically revised standards. Safeguarding the individuality of the product and its manufacture through flexibility of the standardization program.**

Second Lecture (Oct. 14)—**Evolution of different types of standards since the dawn of the human race. Primary importance of the concepts "performance" and "unit of measurement", in setting up standards. Basic definition of the concept "Standard". Principles to be observed in establishing standard specifications.**

Third Lecture (Oct. 21)—**Review of technical and management standards. Standards for form and size; quality of materials and products; inspection and testing; manufacturing operations and processes; ratings (capacity and performance); appearance and finish; designation and definition; safety codes; standing orders; instruction sheets, etc.**

Fourth Lecture (Oct. 28)—**The concept "Tolerance" in standardization. Nominal values, permissible deviations, and manufacturing limits. Interchangeability as a factor in modern production. Relative cost of accuracy. Selective assembly. Replacement problems. Conditions governing smooth transition from one standard to another.**

Fifth Lecture (Nov. 4)—**The meaning of "Quality" in matters of standardization. Composition, process and performance specifications for materials. Grading of qualities. Control of quality of a manufactured product. Significance of the state of control for the relations between buyer and seller. Application of the statistical method to quality control.**

Sixth Lecture (Nov. 11)—**The principles and technique of developing standards and of introducing and maintaining them in practice. Human, technical, economic, and commercial factors. Weight of traditional practice. Choice between the selection of standards from existing ones and the development of new standards. Smoothing the practical difficulties in transition periods between consecutive standards.**

Seventh Lecture (Nov. 18)—**The organization standardization work in an individual company. Coordination of research, development, engineering, planning, manufacturing, inspection, purchasing, testing, merchandising, sales and advertising. Special problems, status, authority and methods of work of a Standards Department dealing with technical matters in an individual company.**

Eighth Lecture (Nov. 25)—**The present status of standardization as a distinct function of executive management, in the United States and abroad. The four stages of coordination: in a company; in a trade association; nationally; and internationally. Activities of national bodies in 26 countries and international cooperation in standardization. Growing importance of standardization and outlook toward its future role in human society.**

The subscription fee for the series is twelve dollars, or ten dollars for members of Engineering Societies and students registered at engineering colleges.

Members of Engineering Societies are cordially invited to attend the first lecture, complimentary tickets for which will be sent upon application to Room 807, 29 West 39th Street, New York City.

The lectures will be given during evening hours in the Auditorium of Metal Products Exhibits Inc., Rockefeller Center, New York City. There will be ample time both before and after each lecture to visit the exhibits. At the time of the first meeting, Metal Products Exhibits will be conducting a special show of "Metals and Minerals, with Examples of Their Use in Industry," prepared in cooperation with the American Institute of Mining and Metallurgical Engineers.

Argentine Standards Body Starts Committee Work

Committees of the newly organized standards institution in Argentina, the Instituto Argentino de Recionalizacion de Materiales, have been set up to work on iron and steel; bolts, screws, rivets and nails; tubes; electrical goods; paints and varnish; galvanized sheets, and zinc work.

Recommendation R58-36, for Classification of Iron and Steel Scrap, Now Available

The Division of Simplified Practice of the National Bureau of Standards announces that Simplified Practice Recommendation R58-36, Classification of Iron and Steel Scrap, is now available in printed form. It specifies classes of scrap for blast, basic open-hearth, acid open-hearth, and electric furnaces for gray iron foundry practice, Bessemer converters, and for miscellaneous scrap. It also includes a contract form for the purchase of scrap. It is a revision of the Simplified Practice Recommendation which originally became effective July 1, 1936, but covers certain additions and eliminations to meet current needs.

Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for five cents each.

British Fruit Growers Want Standard Description for Spray Nozzle Apertures

The disk apertures in spray nozzles of power sprayers used by fruit growers will all be described according to a standard method of measuring if recommendations of a conference of fruit growers held in England recently are followed.

The resolution passed by the fruit growers was sent to the Ministry of Agriculture, and a meeting was arranged by the Ministry with representatives of spraying machine makers and importers.

"It was decided," says the *Times*, London, "that the sizes of disk apertures in spray nozzles of power sprayers should be described according to the nearest number of sixty-fourths of an inch in the diameter of such apertures; for instance, No. 3 should mean three sixty-fourths of an inch. This description is to operate from the date when present stocks are cleared."

Industry Accepts Revision of Recommendation on Hack Saw Blades

A revision of Simplified Practice Recommendation R90-29, Hack-Saw Blades, has been accepted by the industry and is to become effective October 1, 1936, according to an announcement by the Division of Simplified Practice, National Bureau of Standards.

The revision lists the length, width, thickness, number of teeth per inch, and other dimensions of tungsten alloy steel blades, double hardened blades, high-speed steel blades, and special alloy blades—all hard, hand, and power sizes.

Mimeographed copies of this revision Simplified Practice Recommendation R90-36, may be obtained without charge from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

British Printers Move For Paper Standardization

A recent report from London states: "At the quarterly meeting of the British Federation of Master Printers the Technical Committee reported that it had given special attention to the proposal for standardization of paper sizes and weights, and the Council approved its recommendations which included proposed standard sizes of paper, boards, etc., listing and invoicing according to weight per thousand sheets; indicating substance in grammes per square metre; packing in 500's (paper) and 100's (boards), and stating weight per package net, exclusive of wrapper and string."

Standardization in the Building Field

"What is meant by standardization; and how far is it practicable in the building industry?" questions the *Illustrated Carpenter and Builder*, of London.

"There are so many interpretations of the terms standardization and simplification that it is useful to know what meaning an official body like the Building Industries National Council places upon them. It defines two kinds of standardization: (1) standardized quality of materials and equipment, (2) standardized types, designs and sizes. These, of course, are two totally different things, and each has considerable possibilities; though, in the second case especially," says the *Illustrated Builder*, "there is an obvious danger of carrying the thing too far."

"The standardization of quality does not seem to present great difficulty. Much good work has already been done in this direction by the British Standards Institution, whose standard specifications are widely used and appreciated in the industry. The standardization of types, designs and sizes, however, is clearly less simple. Perhaps the chief disadvantages are the dangers of discouraging originality in design and of cramping opportunities for individual craftsmanship. There is no reason, on the other hand, why both of these obstacles should not be overcome if the matter of standardization is handled with discrimination and foresight.

"The advantages of standardization are apparent in many aspects of building. Economy in production costs is one. A reduction in the number of sizes and types of many building materials and fittings would avoid a great deal of waste and would simplify the work of everyone. It would also effect an economy in the costs of assembling and equipping a building. As the Building Industries National Council points out, the concentration on a few types, or even on one type, of material or fitting may allow, in some instances, a larger amount of preparatory work to be carried out away from the site, since the relevant dimensions will be known in advance. This applies, for example, to the cutting and laying of piped services and the completely fitted assembly of such equipment as doors and door frames. Moreover, preparatory work may be carried out on the site at an earlier stage than is now possible; for instance, supports for the sanitary fittings can be built in as the work proceeds, and openings can be left in walls where the services or various kinds of fittings have to pass.

"Another consideration is that standardization of certain kinds of equipment, especially in the smaller class of houses, may mean cheaper maintenance costs. Standardized fittings can be readily replaced at the lowest cost for fixing and with the minimum of disturbance.

"Post-war mass-production has already placed so many standardized products at the builder's disposal," the *Illustrated Builder* concedes, "that he may not feel enthusiastic about a further simplification of design and type which may place an arbitrary limitation upon his choice. On the other hand, he may foresee very real advantages in further standardization of many materials and fittings where individuality of design is not the first consideration."

Standards Add to Efficiency, Increase Railroads' Profits

Says
Joseph B. Eastman

Former Federal Coordinator of Transportation Gives Standardization Important Place in Economical Railroad Operation

"STANDARDIZATION is one of the outstanding factors in economical railroad operation, with a direct effect on a railroad's profit or loss," Joseph B. Eastman said in his final report as Federal Coordinator of Transportation. Analyzing the factors which in his opinion are particularly effective in keeping a railroad in good financial condition, Mr. Eastman recommended modernizing repair shops and establishing standards for design and maintenance of equipment. Part of his report follows:

Policies of Management

"In the final analysis of operating results, it is the degree of effectiveness of the operating department which determines the extent of profit or loss resulting from the handling of the business originated by the traffic representatives.

"A preliminary study of the types of organization of many railroads, coupled with the knowledge that during recent years operating conditions have changed materially, indicates that managements must function more efficiently than ever before. One of the most important functions of management is that of establishing sound and uniform policies for the selection, procurement, maintenance, and use of equipment.

"After some degree of uniformity has been established the next step would be to set up appropriate means by which effort can be directed consistently toward the following objectives:

(*a*). Standardization of equipment designs
(*b*). Standards of equipment condition control
(*c*). Standards of reliability of service rendered by equipment, phyical condition, and the cost thereof
(*d*). Standardization of repair shop facilities, machinery, and equipment
(*e*). Uniformity in shop methods
(*f*.) Uniform cost accounting methods and control
(*g*). Elimination of unnecessary manufacturing operations performed under the guise of repairs, reclamation

"There must be real national standardization in the matter of locomotive design, shop prac-

tices, and limits of wear before full advantage can be taken of joint use of heavy repair shops, especially when those shops must be used to repair locomotives of widely different designs intended to serve different transportation requirements."

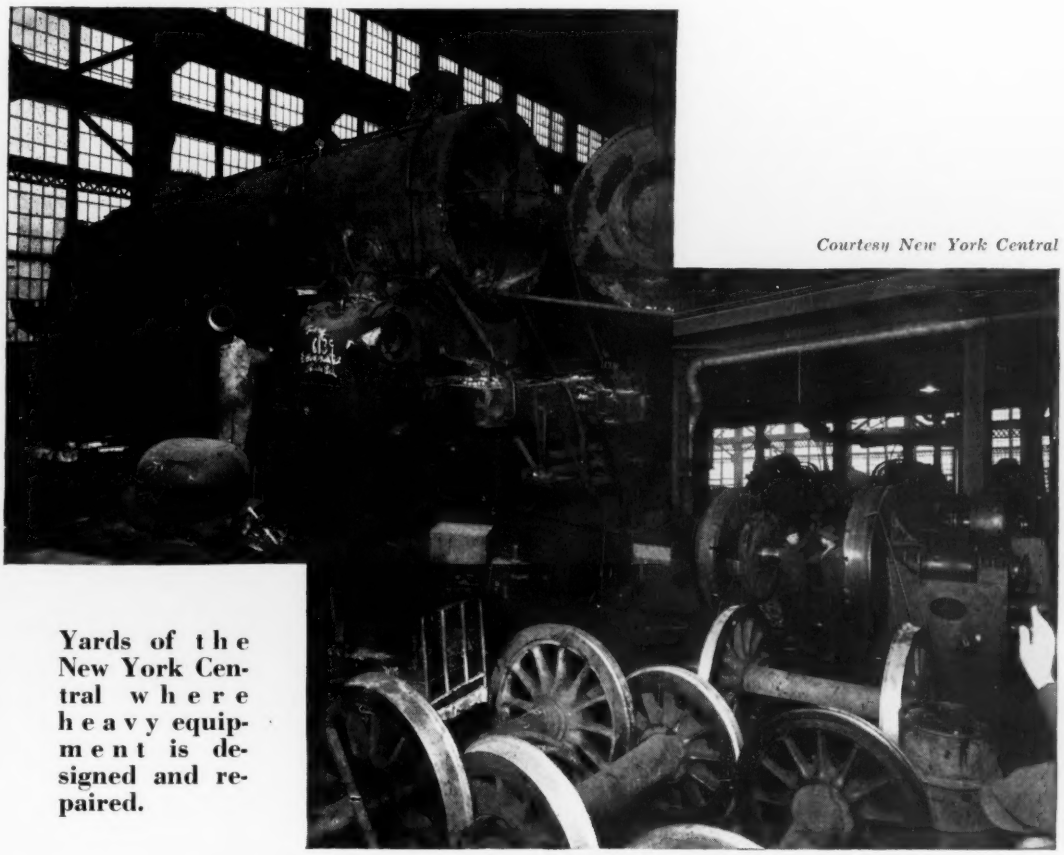
Cooperation on 62 projects of the American Standards Association is evidence of the railroads' increasing interest in the national standardization program. Five divisions of the Association of American Railroads, interested in operating, engineering, purchasing, and mechanical problems, are represented on these standards committees.

The railroads' varied interest in standards ranges from mechanical projects of such wide significance as cast-iron pipe and special castings, screw threads, ball and roller bearings, allowances and tolerances for cylindrical parts and limit gages, pipe flanges and fittings, and bolt, nut, and rivet proportions, to others of direct application to railway problems, such as railway cross-ties and switch ties. Radio, safety code for walkway surfaces, insulated wires and cables, railway motors, methods of testing wood, wood poles, and methods of sampling coal are some of the general projects in which the railways have shown particular interest.

A standard of outstanding interest—railway grade crossings—was recently referred to the American Standards Association by the railroads.

The Association of American Railroads, representing the interests of the railroads in the national standardization program, is a Group Member of the American Standards Association. L. A. Downs, president of the Illinois Central Railroad, and J. C. Irwin, Boston and Albany Railroad, are members of the ASA Board of Directors.

The AAR is also represented on several of the administrative committees of the American Standards Association—the Electrical Standards Committee, in charge of electrical standards under the procedure of the ASA, the United States National Committee of the International Electrotechnical Commission, and the Mechanical Standards Committee, in charge of mechanical standards under the ASA.



Courtesy New York Central

Yards of the New York Central where heavy equipment is designed and repaired.

Australia Issues Standards For Concrete Pipes

In response to requests for a specification for concrete pipes, the Standards Association of Australia has issued the draft of such a standard for public criticism. The standard covers three types of pipes:

1. Cement-concrete (unreinforced).
2. Standard reinforced concrete.
3. Extra strength reinforced concrete.

The specifications contain clauses dealing with several classes including: Portland cement reinforced steel, fine and coarse aggregates, grading and proportioning, wall thicknesses and steel qualities, and various other aspects.

Copies of the draft may be obtained gratis from the Victorian office of the association, or from the ASA at a small charge for handling.

Division of Simplified Practice Lists All Its Recommendations

A list of all existing Simplified Practice Recommendations is now available from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C. The list, revised as of June 30, 1936, is identified as Letter Circular 345.

Automobile Speedometers To Be Standardized

Standards for automobile speedometers and their performance are well under way, according to *SAE Journal*, June. The subdivision on speedometers, appointed last year under the Parts and Fittings Division of the Society of Automotive Engineers' Standards Committee, has reported a proposed method for the accurate determination of car speeds and a tentative recommendation of speedometer performance and classification. These are being submitted to car and speedometer manufacturers for review.

This subdivision is also studying the standardization of flexible driving shaft construction and connections with the view of revising the present SAE Standard for tachometer drives which is published in the *S.A.E. Handbook*.

British Add "Phon" as New Standard Sound Measuring Unit

The first step toward the establishment of standards for noise measurement by the British Standards Institution was taken this year with the approval of a British Standard Glossary of Acoustical Terms and Definitions.

The British Standard definitions restrict the use of the decibel to intensity and other power values; and use a separate term, the phon, for loudness measurement. The term "phon" originated in Germany, but the British definition differs slightly from the German which has a slightly higher reference pressure and uses a different method of listening. The basis of the British definition agrees with that adopted as the unit of equivalent loudness in the United States, although in the United States this is expressed with the term decibel. It was to avoid the ambiguity resulting from the use of the decibel for both the intensity of a sound and also to express its loudness in terms of the intensity of an equally loud sound of standard pitch that the British decided to use the term "phon" for intensity value.

A section on musical terms is included in the new British Standard Glossary.

Copies of the Glossary (B.S.I. 661-1936) may be ordered through the American Standards Association.

A.S.T.M. Submits Revisions In Structural Steel Standards

Revisions in standard specifications for steel for bridges, steel for buildings, and for structural rivet steel[1], mentioned when these standards were first submitted for approval by the American Society for Testing Materials on April 30, 1936, have now been submitted by the A.S.T.M.

Revisions in the structural steel specifications cover additional provisions for inspection, and acceptance or rejection of structural steel following chipping and welding operations.

The revision in the specifications for rivet steel affects the table of chemical requirements by changing the allowable percentage of sulphur from "not over 0.045 per cent to not over 0.05 per cent."

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[1]ASA G18-1936; A.S.T.M. A 7-34; ASA G19-1936, A 9-34; and ASA G21-1936, A.S.T.M. A 141-33.

British Issue Standard For Carboys and Hampers

Standard specifications for carboys and carboy hampers used to store heavy acids, solvents, and similar liquid chemicals have been issued by the British Standards Institution. The standard refers to the most usual size of carboy—10 gal nominal capacity—and includes details such as the shape of the mould in which the carboy is blown, and dimensions for the shape of the neck.

No specific requirements for the minimum thickness of the glass used are included, because it was found that there is no satisfactory method of measuring the thickness of a carboy. Recommendations as to the minimum thickness which should be aimed at in manufacture are given, however. The specification also includes requirements relating to the materials and methods of construction of hampers suitable for ordinary use.

"In the preparation of this specification, the aim of the committee has been to lay down a standard for an article of good commercial quality and reasonable life, without making the requirements so stringent as to result in increased cost of manufacture," says *Chemical Age*, London, in announcing the new standard.

Founder Societies of the American Institute of Physics Plan Joint Meeting

In New York on October 29-31, the five Founder Societies of the American Institute of Physics plan to hold a joint meeting, the occasion for which will be the Fifth Anniversary of the Institute.

While the meeting will consist partly of the regular papers of the separate societies, every effort is being made to arrange a program of exceptional interest in which all can participate. These joint sessions will emphasize the applications of physics in the industrial world of today. To this end leaders in various fields have been invited to take part in symposia concerned with the training of physicists for industry and with the applications of physics in industry.

Non-scientists as well as engineers and chemists are invited to attend these meetings which, while abounding in technical value, will be addressed to all who are interested in science whether or not they are specialists in the fields discussed.

On Friday evening, October 30, a joint dinner of all Founder Societies will be held at the Hotel Pennsylvania.

Seal Stickers Will Tell Buyers Gas Appliances Meet Standards

A plan to call the attention of prospective buyers to the approval of gas appliances by the American Gas Association's Testing Laboratories has been approved by the A.G.A. committee on gas-burning appliances. According to the plan officially sanctioned by the committee, the use of gummed paper stickers of the Blue Star Seal of Approval, temporarily pasted on the tops or fronts of all new approved gas appliances, will be encouraged. Manufacturers of gas-burning appliances will purchase the gummed paper Seals at cost, and in any size desired, from the Association's Testing Laboratories, and will affix them to their products in conspicuous positions. It is not intended that these paper seals will take the place of the permanent seals required to be displayed on the name plate of every approved appliance, but will be supplementary.

They are intended merely to increase customer appreciation of the fact that the units bearing them are endorsed as complying with accepted national standards.

The plan was originally recommended to the American gas appliance industry by the American Gas Association's subcommittee on approval requirements for gas ranges when it met in Cleveland in June, 1935. Since then the proposal has received much favorable comment. Consumer groups and home economics organizations have shown particular interest in this plan, and have, in several cases, expressed approval of it. The plan was approved by the committee in May, not only for gas ranges but for all types of gas appliances tested and approved by the American Gas Association.

The A.G.A. Testing Laboratories is now undertaking the design and production of gummed paper replicas of its official emblem of certification. It is planned, tentatively, that these labels will be produced in large quantities in 1, 1½ and 2-inch diameters and, therefore, may be obtained at negligible cost. Other sizes may, however, be produced if the need arises for them.

Include Window Glass In Mirror Standard

Changes to include "shock" or common window glass mirrors and to eliminate AA and No. 3 quality plate glass mirrors as a revision of Commercial Standard CS27-30 Mirrors have been accepted by the industry, according to an announcement from the National Bureau of Standards.

The revised standard is effective for new production beginning August 20, 1936.

Bureau of Standards Lists Nations Testing Laboratories

A list of laboratories in the United States which are prepared to test various kinds of commodities to determine whether they comply with purchase specifications has been compiled by the National Bureau of Standards.

The list includes 244 commercial testing laboratories, and shows the types of commodities which they are prepared to test. A list of 200 colleges equipped for research work accompanies the list of commercial testing laboratories.

The *Directory of Commercial Testing and College Research Laboratories* may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., for 15 cents.

Heat Treatment of Metals Co-Operative Concern of A.S.T.M. and American Society for Metals

The American Society for Testing Materials has just completed arrangements with the American Society for Metals to cooperate with that society in the development of its recommended practices for heat treatment of metals. This will be done through a representative on the A.S.M. Handbook Committee who will have the responsibility of bringing recommended practices to the attention of interested A.S.T.M. committees and of soliciting their comments for the consideration of the Handbook Committee. A number of A.S.T.M metals committees are actively concerned with specifications for heat-treated products, necesitating at times the inclusion of requirements for heat treatment practices, and it is believed the cooperative arrangement between the A.S.T.M. and the American Society for Metals, the latter of which has for some years been devoting its major attention to the field of heat treatment, will be of mutual advantage.

German Society Issues Technical Gas Standards

The German national standardizing body has recently distributed German standards for gases for technical use.

The tables given in these standards show caloric values and standard weights per cubic meter. Some of the gases included are: helium, neon, argon, methane, propane, iso-butane, ammonia, and water vapor.

Copies of these standard sheets (DIN 1871 and 1872) are available from the ASA office, at 20 cents per sheet, or may be borrowed without charge.

A.S.M.E. Calls Conference on Symbols for Heat and Thermodynamics

An informal international conference to consider Letter Symbols for Heat and Thermodynamics is being called by the American Society of Mechanical Engineers at the request of the ASA sectional committee on Letter Symbols and Abbreviations (Z10). The matter will come up in conjunction with the meeting of the World Power Conference in Washington this month; but actual sessions will be held in the A.S.M.E. offices at 29 West 39th Street, September 13th-14th. A general meeting will take place on Sunday, September 13th, at 8:30 p.m.; and two technical sessions are scheduled for Monday, September 14th, at 9:30 a.m. and 2:00 p.m. respectively. The national standard symbols used by Great Britain, France, and Germany will be considered as well as the American standard symbols approved by the American Standards Association.

Limitation on Manganese Proposed For Revised Iron Bar Standard

Revisions in the standard specifications for refined wrought-iron bars[1], including a requirement providing that the manganese shall not exceed 0.15 per cent, are now before the American Standards Association for approval.

Minor changes in wording and elimination of the word "wrought" in the title have also been suggested.

The American Society for Testing Materials submitted the proposed revision to the ASA.

[1]ASA G12-1931; A.S.T.M. A 41-30.

New Government Equipment Solves Testing Problems on Large Scales

National Bureau of Standards Extends Check on Accurate Weights and Measures from Small Grocery Scales to 30-Ton Motor Truck Scales

New Traveling Equipment Will Show When Large-Capacity Scales Are Up to Standard

ADEQUATE testing of large-capacity scales, and design of equipment for this work, have become among the most important problems of the weights and measures official. The development of large-capacity scales has been comparatively recent. The capacity of these scales has increased so rapidly that many weights and measures officials have not been able to keep pace by obtaining suitable equipment to test them. Equipment that served to test the 4 or 5-ton wagon scale of a few years ago is quite inadequate to test present-day 20 and 30-ton motor-truck scales.

An announcement by the National Bureau of Standards that it has purchased equipment for testing large-capacity scales has, therefore, been received with interest by weights and measures officials in this country.

In making this announcement at the twenty-sixth National Conference on Weights and Measures, Doctor Lyman J. Briggs, Director of the Bureau, and president of the conference, explained that the equipment was being purchased for routine testing of scales owned by the Government of the United States. "It will also serve as a temporary aid by the Federal Government to the States which have not yet obtained proper equipment for testing large-capacity scales," he said. Through this equipment the Bureau will be able to obtain, and furnish to these States, information on conditions in their respective jurisdictions, and thus assist them to determine whether or not special equipment is required.

Requests from weights and measures officials of States and large city and county jurisdictions, which are not properly equipped at the present

Photo by Department of Public Markets

Testing a Vehicle Scale

This view shows the scale platform, scale house, 1,000 pound weights, dolly, truck and operating equipment, that has been used by the Monroe County, N. Y., Department of Weights and Measures since 1930. The dolly is not usually included in a test load.

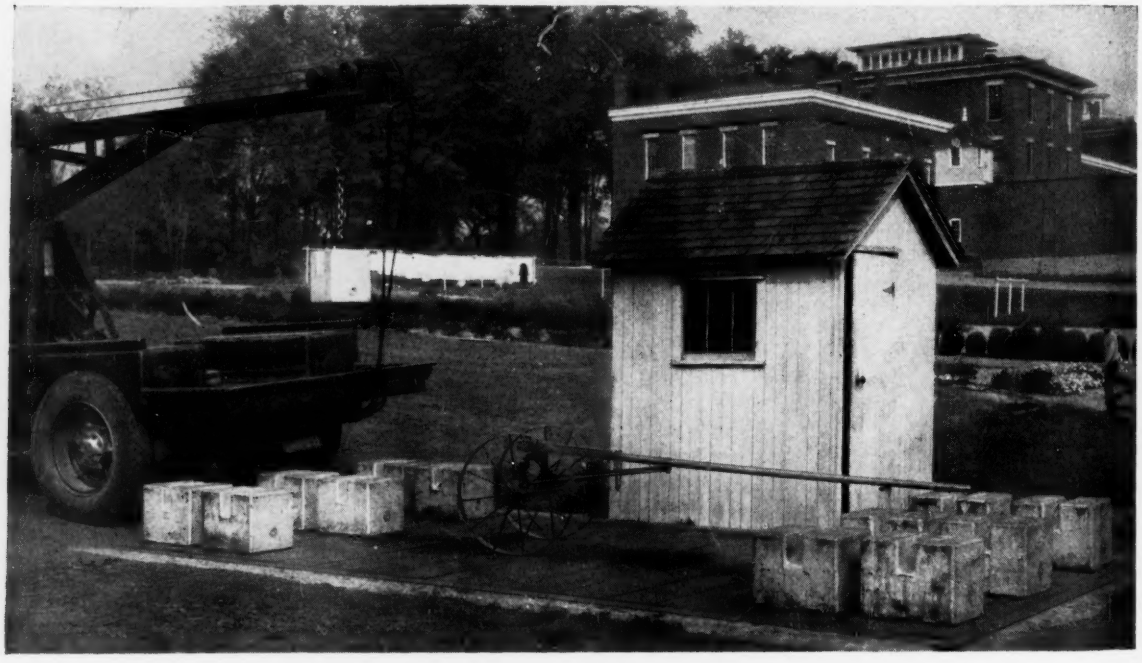
time, to bring the testing equipment into such jurisdictions, will be received by the Bureau. With the local official's assistance and cooperation a representative number of scales will then be tested in each jurisdiction. The determination of what scales are to be tested and the routing of the equipment will be left to the decision of the weights and measures official. A representative of the local jurisdiction will accompany the equipment and will work with the Bureau operators. Upon completion of the testing of designated scales the Bureau will prepare an individual report on each scale tested. This report will be given to the owner of the scale, and a copy will be sent to the weights and measures official of the jurisdiction.

At the conclusion of the work in a given jurisdiction the Bureau will analyze the detailed records of all tests and will prepare a summary report showing the condition of the scales as demonstrated by those tested. The report will also include recommendations to the official in charge as to the proper proceeding which he should adopt. It is expected that by means of these tests, many officials will be furnished for the first time with accurate information concerning the condition of vehicle scales within their jurisdictions. If the condition of a large number of the scales should prove to be unsatisfactory (as is expected) the official will have actual data upon which to base arguments for buying suitable testing equipment. Armed with these reports, he will be able, in the majority of cases, to demonstrate to the legislature or other governing body the necessity for such equipment.

The object of the official test of a scale is to determine whether or not the scale is capable of indicating correctly the weights of commercial loads that are placed upon it. If the test load is not adequate, the official has insufficient information upon which to base his approval, for it is not safe to assume that a scale that will weigh a small load correctly will weigh any load within its capacity range with equal accuracy.

Most of the commodity weights are determined on the upper weighing range of the scale, above

Courtesy Department of Public Markets



Large-Capacity Scale Testing Equipment Used By the New York City Markets, Dept. of Weights and Measures

This unit, which is similar to the type of equipment ordered by the Bureau of Standards, was exhibited at the National Conference on Weights and Measures held recently in Washington, D. C. It is shown loaded ready for road operation. Note the swinging boom, trolley, and hoist. Compartments at the side of the truck are used for storage of 50-lb weights and auxiliary equipment.

the weight of the empty vehicle; consequently the test load should represent a reasonable proportion of the scale capacity. Furthermore, the error of scale indication is more surely and definitely determined on a large, than on a small, test load, and the allowable tolerance may be more fairly applied. In earlier days when 5-ton vehicle scales marked the upper limit in scales, 1 ton of 50-pound test weights, representing 20 per cent of the scale capacity, was considered a reasonable test load. But today 1 ton of weights is entirely too small a load upon which to rely for an adequate test of scales having a capacity of 20, 30 and even 40 tons. Assuming the same percentage of test load to be satisfactory, several tons of weights should be available for testing the large-capacity scales.

Considered on a basis of economy, maintenance of accuracy, and efficiency in handling, weights in large units are greatly to be preferred for at least the bulk of the test load used in testing large-capacity scales. The large-unit weight, however, introduces problems of transportation to, and handling at, the scales. To overcome this difficulty, special equipment has been developed in some weights-and-measures jurisdictions. Certain States, New Jersey and Illinois, for example, have specially designed equipment, owned by the State, and operated in cooperation with local jurisdictions. Some local jurisdictions also own and operate special equipment. Only a few States, however, have provided equipment that is adequate for the purpose, although the need for this equipment is recognized generally by the weights and measures officials. It is hoped that through the operation of the Bureau equipment, information will be obtained which will stimulate the interest of State and local governing bodies to the extent that proper equipment will be provided, and weights and measures officials will be enabled to inaugurate testing programs of their own.

The testing unit to be used in the Bureau program was decided upon only after careful study of the conditions expected to be met. The unit will be used throughout the United States under full load at all times, under all conditions of weather, over all types of roads, over open, rolling, and hilly terrain ranging from sea level to 10,000 feet elevation. It will be away from its base most of the time and will be operating under a variety of traffic laws having different requirements as to axle loads, running lights, speeds, body sizes, etc. In addition, a conventional type of unit was desired, one which could be duplicated, or modified only in minor respects, by States to meet their particular needs. Conservation of the time and energy of the testing force in carrying out a program of this size required also that provision be made for mechanical handling of the weights. These considerations led finally to the selection of a unit consisting of a specially designed motor-truck equipped with swinging boom, trolley, and hoist, each of which will be power-operated.

The total gross load of the unit is expected to be about 38,000 pounds. But as this weight would produce excessive loading on a single rear axle, the truck has been designed with tandem rear axles in an effort to reduce the axle loading sufficiently to comply with the load limitation requirements of at least a majority of the States. The cab will be enclosed, but the platform type body will be open except for 12-inch sideboards and tail gate. Storage space will be provided to accommodate the personal baggage of the men in charge of the unit and the small weights, accessories and tools which are necessary in the operation of the unit. The heavy-duty truck engine will be amply powerful to meet any condition which may be anticipated. Fifteen 1000-pound weights, rectangular in cross-section and recessed in the bottom to fit over built-up mushrooms fastened to the truck bed, will be carried.

The power-operated equipment to handle the weights will consist of a swinging boom, supported by a mast which is mounted directly behind the cab, and a trolley and hoist capable of lifting three 1000-pound weights at one time. The hand lever controls for swinging the boom, traversing

New York City Utilizes New Equipment in Guarding Weight Standards

New York City alone has 130 platform scales of capacities up to 30 tons. These are designated as Official Coal Scales for the protection of the consumer public in New York from short weight in coal deliveries. In addition to the official scales, there are approximately 300 large-capacity scales in New York City coal yards, and an undetermined number of large-capacity scales for weighing building materials, junk, etc.

New equipment for testing these scales is similar to that recently ordered by the National Bureau of Standards.

the trolley and hoisting the load will be grouped for convenient operation from a standing position on the left side of the frame. A two-wheeled cart for moving weights at the scale will also be carried on the truck. Every precaution has been taken in the design of the entire unit to insure safety during testing and operation on the highway. The equipment is now under contract and delivery is expected about September 15, 1936.

The test procedure contemplates end testing with the full 15,000 pounds of known weights where the capacity of the scale under test is such as to justify that load. The weights will be unloaded by the crane directly on one end of the scale and will later be moved to the opposite end by means of the two-wheeled cart. After tests have been made at each end of the scale, the weights will be removed by the cart, the truck placed upon the scale as a strain load, and the weights reloaded into the truck; thus applying them with the scale under strain load. The position of the truck will then be reversed in order to bring the loaded end of the truck on the opposite end of the scale. In addition to the 1000-pound weights, small weights will be used on the scale, part of them being balanced out before the test is begun, so that errors may be determined by the addition or subtraction of known weights on the platform rather than by manipulation of a weight beam.

The Bureau's proposed program for the testing of vehicle scales is similar in certain respects to the investigation of commercial weights and measures carried out by the Bureau in 1910 and 1911. At that time only a few States and some of the larger cities were inspecting weights and measures. Within a period of two years the Bureau inspectors visited practically every State and made inspections in about 250 cities of weights and measures in commercial use. Reports were made on conditions existing in these cities and resulted, within a very short period, in the enactment in many States of legislation which established weights and measures inspection departments. It is hoped that the present program, which is expected to be completed in about five years, will be of equal assistance in raising the standard of efficiency of apparatus for the official testing of large-capacity scales, to the end that greater service may be rendered to the owners of commercial scales and greater protection afforded to those who buy commodities over them.

Urge Revision of The Building Code[1]

by

M. E. Dunlap

WITH the development of new building materials and new methods of construction, the necessity of revision to our building laws or codes is becoming more evident. Most of our regulations are too restrictive, and, if obeyed to the letter, eliminate the possibility of using many of the new materials and thereby make for extravagant costs in construction. Many of the present requirements in most of the codes are antiquated and were born of the need for them at the time those requirements were adopted. The needs have changed—but the requirements remain.

All over the country efforts are being made to revise or rewrite the present codes to bring them up to date; that advantage may be taken of the new materials and new methods of construction; that combustible materials be restricted; and that minimum standards be established for means of egress; that welding of steel be permitted; and that tenement houses having more than two habitable floors be constructed of fireproof materials and many more items essential to the building industry.

Of importance to the various political subdivisions of the Commonwealth is the question whether the laws and regulations controlling the art of building construction in this Commonwealth should be acts of the General Assembly, such as the present Building Code of Philadelphia, or ordinances of the local legislative body, or whether there should be one code governing the art of Building Construction throughout the entire Commonwealth. It would be interesting to have a statewide expression of opinion on that question.

[1]The Journal of the Pennsylvania Association of Architects, August, 1936.

Grading Rules Apply To Hardwood Lumber

A recommended Commercial Standard on hardwood dimension lumber, adopted by a general conference on grading rules, June 26, is being circulated by the Division of Trade Standards, National Bureau of Standards.

"These grading specifications may not be applicable to every transaction involving the sale of hardwood dimension lumber," the standard itself states, "but they will in most cases provide basic specifications to which other requirements may be added in order that the purchaser may purchase, by grade, the type of material best suited to his needs."

Copies of the proposed standard, which will be set up as a Commercial Standard, upon acceptance by industry, are available from the Division of Trade Standards, National Bureau of Standards, Washington, D. C.

British Issue Specifications For Coal Tar Creosote

A revision of the specifications for coal tar creosote used in the preservation of timber has just been published by the British Standards Institution. These specifications cover methods for: (1) Determination of specific gravity; (2) Determination of water; (3) Distillation; (4) Determination of Tar Acids; (5) Determination of matter insoluble in benzole; (6) and apparatus needed for the tests. The volume of recent inquiries about these specifications indicate that they are of considerable interest to American industry. They may be obtained from the American Standards Association, 29 West 39th Street, New York, at 75 cents per copy.

Clarify Laboratory Procedures In Proposed Standard Revision

Proposed new wording in order to clarify the present American Standard laboratory procedures for preparing micrographs of metals and alloys and for photography as applied to metallography[1] has been suggested in a proposed revision of the standard submitted by the American Society for Testing Materials to the American Standards Association.

The proposed revision, which is now being considered by the ASA, has been in preparation in the A.S.T.M. Committee on Metallography for some time.

[1]American Standard Rules Governing the Preparation of Micrographs of Metals and Alloys, Including Recommended Practice for Photography as Applied to Metallography (ASA Z30.1-1933; A.S.T.M. E 2-30).

Propose Minor Changes In Textile Standard

Changes in the general methods of testing woven textile fabrics have been presented by the American Society for Testing Materials for approval by the American Standards Association.

The revisions are largely editorial in character with a few changes in substance to bring procedures into line with current practice. A further change consists in a recommendation that the method of test for shrinkage included in the standard methods in 1934 be issued as a separate standard. The method of test for shrinkage in laundering has been submitted to the ASA for approval as a separate standard.

Blueprints to Show Standard Symbols for Refrigeration

The Refrigeration Division of the National Electrical Manufacturers' Association and the Air Conditioning Manufacturers' Association have approved Standard Refrigeration Symbols and submitted them to members of the Association as "recommended practice" for blueprint and general drafting work.

This list of Standard Refrigeration Symbols is not complete or final, but may be added to from time to time as it seems desirable. In this way, graphic "layout" presentations will be more standardized and consequently more easily understood.

Copies of the list of the recommended Standard Refrigeration Symbols may be secured from the Refrigerating Machinery Association or from the National Electrical Manufacturers Association.

Government Approves Federal Specifications

The following Federal Specifications have been approved for all Government purchases of the material covered:

Fresh Mustard and Turnip Greens HHH-G-651
Aluminum-Alloy Ingots QQ-A-371
Fresh Lettuce HHH-L-226
Diesel-Engine Lubricating Oil VV-O-511
Manifold Paper UU-P-328a
Molded Cork Pipe-Covering HH-P-381
Machine Screws (Including Set Screws) FF-S-91
Silver-Plated Tableware RR-T-51a
Cotton Thread V-T-276a
Asphalt Tile SS-T-306
Structural Clay Floor Tile SS-T-321
Structural Clay Load-Bearing Wall Tile SS-T-341
Structural Clay Non-Load-Bearing Tile SS-T-351
Steel Wool FF-W-566

Copies of the specifications may be purchased from the Superintendent of Documents, Government Printing Office, Washington, D. C., or from the office of the American Standards Association.

Standard Practices Proposed To Reduce Fire Hazards

National Fire Protection Association, Member-Body of ASA, Acts on Committee Reports

Is Cooperating on 24 ASA Standards Projects

THE National Fire Protection Association at its annual meeting early this summer reported on a number of recommended practices and standards to prevent loss of life and property by fire.

The National Fire Protection Association through its membership in the Fire Protection Group is a member of the American Standards Association, and is active in many standardization projects under ASA procedure. It has administrative leadership of six of these projects, is represented on 18 additional committees, and is a member of the Building Code Correlating Committee and the Safety Code Correlating Committee of the ASA. It has also recently accepted joint leadership with the National Bureau of Standards and the National Board of Fire Underwriters of a committee on building code requirements for fire protection and fire resistance.

The following items on matters considered at the annual meeting are abstracted from part 2 of the Quarterly of the N.F.P.A. July, 1936.

Dust Explosions

The N.F.P.A. committee on dust explosion hazards, which has the same personnel as the ASA Sectional Committee on Safety Codes for the Prevention of Dust Explosions (Z12) recommended to the National Fire Protection Association that the following precautions against dust explosion hazards be taken in plants processing soy beans:

1. In elevators processing soy beans, the safety code for explosions in grain elevators should be followed.

2. In plants milling or grinding soy beans or preparing them for processing, the safety code for the prevention of dust explosions in flour and feed mills should be followed.

3. In soy bean processing plants using the extraction process all possible precautions should be taken to provide for the safe operation of such units because the solvents generally used constitute a fire and explosion hazard.

4. When hazardous solvents are used consideration should be given to the practicability of installing instruments which will detect the presence of flammable vapors and give warning when the concentration approaches the lower explosive limits.

Subcommittees are preparing recommendations for the prevention of aluminum and other metallic dust explosions, and a safety code for prevention of dust explosions in sulphur handling, crushing, and pulverizing operations.

New regulations for the installation of power-operated ventilating, air conditioning, dust, stock, and vapor removal systems were recommended to the National Fire Protection Association to supersede the regulations printed by the N.F.P.A., edition of 1935. This edition was approved by the American Standards Association as Fire Protection Code for Blower and Exhaust Systems (Z33-1935). The report of the committee was adopted by the N.F.P.A., subject to minor changes to be passed upon by the Board of Directors.

Marine Fire Hazards

During sessions of the Marine Section, the committee on Motor Craft, Pleasure and Commercial, presented recommendations revising appendix D of the N.F.P.A. regulations covering marine fire hazards, edition of 1930, as a further revision of

the report tentatively adopted in 1935. Following discussion, further work seemed desirable and the report was referred back to the committee. The committee on operation of Marine Terminals presented recommended good practice requirements affecting cargo placement, movement of cargoes, mechanical equipment, etc.

Truck Transportation

The committee on truck transportation, organized during the past year, recommended work in the important new field of safeguarding all types of merchandise in transit on highways.

Bridge & Tunnel Construction

Good practice requirements for safeguarding against fire hazards during bridge construction and good practice requirements for safeguarding against fire hazards during tunnel construction were recommended as tentative to supplement previous good practice requirements of the N.F.P.A. in this field.

Care of Fire Hose

The committee on field practice presented the text of an informative pamphlet on the care of fire hose, first reported at the 1934 meeting of the N.F.P.A. With the adoption and final publication of this latest report, the previously published standards on this subject appearing in the regulations on hose houses for mill yards and the pamphlet on private fire brigades will be discontinued.

Fireproofing

During the past year, it was reported, the work of the committee on fireproofing has been extended to include standards for preservative treatments for wood, textiles, and other combustible materials treated to increase their resistance to fire and to decay and insect attack.

Extinguishers

Revised standards for regulations for foam extinguisher systems and for the construction and installation of spark arresters for chimneys and stacks were submitted by the Committee on Manufacturing Hazards and approved by the N.F.P.A. These standards have been published in separate pamphlet form.[1] The importance of dwelling house inspections as one means of controlling fire hazards was also emphasized.

[1]These may be obtained from the N.F.P.A. office on request.

New N.F.P.A. Officers Announced

The National Fire Protection Association at its annual meeting elected the following men to hold office for the coming year.

For President, succeeding Harold W. Miner:
George W. Elliott, Philadelphia

For 1st Vice-President:
Samuel D. McComb, New York

For 2nd Vice-President:
C. H. Haupt, Elizabeth, N. J.

For Secretary-Treasurer & Managing Director:
Franklin H. Wentworth, Boston

For Chairman of Board of Directors:
Albert T. Bell, Atlantic City

Motion Picture Film

Amendments to the regulations for nitrocellulose motion picture film, photographic and X-ray nitrocellulose film, and pyroxylin plastic were adopted.

Flammable Liquids

The National Fire Protection Association adopted, tentatively, recommended regulations for liquefied petroleum gas systems, and liquefied petroleum gas as a motor fuel. The recommendations adopted at the meeting included:

1. Regulations for safeguarding dry cleaning and dry dyeing plants as a complete revision of the 1925 edition.
2. Amendments to the regulations for the installation of oil-burning equipment, 1934 edition.
3. Regulations for the installation, maintenance, and use of small heating and cooking appliances.
4. Suggested regulations for foundations of above-ground vertical cylindrical tanks containing flammable liquids.
5. Suggested ordinance for petroleum wharves.

All of these recommendations were adopted.

Recommended revisions in regulations for the construction and installation of gravity and pressure tank towers, etc., were adopted.

Foreign Standards For Sale by ASA

Use serial number when ordering any of the foreign standards listed below. Address a postal card or letter, with name of person to receive the pamphlets, to:

American Standards Association,
29 West 39th Street,
New York, N. Y.

Standards are printed in language of the country under which they are listed.

Canada

910. Standard specifications for carbon steel forgings
911. Essential requirements and minimum standards covering electrical equipment:
Industrial control equipment in ordinary (i.e. non-hazardous) locations
912. Construction and test of soldering lugs
913. Construction and test of transformers for luminous-tube signs and oil burner ignition equipment

Norway

914. Conventional signs
915. Geometrical rules
916. Mathematical symbols
917. Symbols for vectors
918. Units

Australia

919. Incorrodible metal alloy sanitary fittings (for use with soil and waste pipes)
920. Salt glazed ware pipes including the quality requirements of salt glazed ware pipe fittings
921. Light-flat-bottom rails and fishplates and bridge rails

Great Britain

922. Portable photometers (visual type)
923. Identification of pipes, conduits, ducts, and cables in buildings
924. Colors for signal glasses for railway purposes
925. Plano convex (bullseye) lenses
926. Bacteriological test tubes, Durham fermentation tubes, and Dreyer agglutination tubes

Classification of Coals Submitted for ASA Approval

Proposed standards on classification of coals by rank and by grade are now before the American Standards Association for approval as American Tentative Standard. They were submitted by the American Society for Testing Materials, which has administrative leadership of the work.

These two documents[1] were first published as tentative in the spring of 1934. A few suggested changes received as the result of wide distribution of the proposed standards have been made since they were first issued by the Society.

[1]A.S.T.M. D 388 35 T and D 339-34 T.

Committees Reaffirm Simplified Practice Recommendations

The following Simplified Practice Recommendations have been reaffirmed without change by the standing committee of the industries, according to an announcement from the Division of Simplified Practice, National Bureau of Standards:

Wire Diameters for Mineral Aggregate Production Screens R147-33	5 cents
Range Boilers and Expansion Tanks R8-29	10 cents
Packaging of Electric Railway Motor and Controller Parts R145-33	5 cents
Range Boilers and Expansion Tanks R8-29	10 cents

Copies of the recommendations may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the prices indicated.

Box Board Thickness Changes Suggested

Proposed changes in the Simplified Practice Recommendation R44, Box Board Thicknesses, have been mailed to all interested by the Division of Simplified Practice, National Bureau of Standards, for consideration and approval.

The proposed revision is based on the current standards of the National Paperboard Association, and applies essentially to changes in the thickness of various kinds of box board to meet current needs. Definitions have been added.

Mimeographed copies of the proposed revision may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington, D. C.

A.S.T.M. Suggests Changes In Standards for Flanges

Revisions in the standard specifications for carbon-steel castings for valves, flanges, and fittings for high-temperature service and the standard specifications for forged or rolled steel flanges for high-temperature service[1] have been submitted to the American Standards Association by the American Society for Testing Materials.

Revisions in the standard for castings are confined to an extension of the tables given in the appendix to include higher and lower service pressures for power piping and oil piping at temperatures below and above 750 F.

[1]ASA G17.1-1934; A.S.T.M. A 95-33; and ASA G17.3-1934; A.S.T.M. A 105-33.

Canadian Engineering Institute Will Celebrate 50th Anniversary

The Engineering Institute of Canada is planning to celebrate its fiftieth anniversary with a Semi-Centennial meeting to be opened in Montreal, June 15, 1937.

Present plans for the meeting include a series of technical papers on the main branches of engineering, many of which will be international in scope. There will also be specially arranged visits to engineering works and other points of interest in the vicinity.

"It is our desire that this occasion may be the means of bringing about a closer acquaintanceship between the engineers of the United States and Canada." said Mr. R. J. Durley, secretary of the Institute, in his recent announcement of the meetings. "While there has always been the closest cooperation between American and Canadian engineers, we hope that this meeting will provide the opportunity for broadening international contacts and cementing the many acquaintanceships already made."

Registered Mark Suggested in England for Standard Socket Outlets and Plugs

The Association of Supervising Electrical Engineers, a British organization, has recently suggested to the British Standards Institution that all manufacturers making accessories to the standard of the B.S.I. should show clearly on the accessory by a registered mark that it was made in accordance with these standards. At the same time it was suggested that the B.S.I. publish a list of all manufacturers who were authorized to use the trade mark.

The object of this suggestion is to end the confusion caused by certain standard accessories which have been found, when sent on a job, not to be interchangeable with sockets already installed. Of course nothing is more annoying for a supervisor than to order some part of an accessory according to British Standard specifications, and to receive one which will not fit correctly. The whole question is linked up with that of interchangeability of parts.

New ASA Standards Council Member Chosen by A.G.A.E.M.

William T. Rasch, President of the Gas Appliance and Equipment Manufacturers' Association, has just been appointed to represent the A.G.A.E.M. on the Standards Council of the American Standards Association.

Although the Gas Appliance and Equipment Manufacturers have not until recently held a direct membership in the American Standards Association, they have for some time taken an active interest in standardization work. In fact the gas industry, through the American Gas Association, is already represented on 26 technical committees in charge of special ASA projects, as well as being represented on the Safety Code Correlating Committee and the Standards Council. The Gas Safety Code, approved in 1927, has been of interest to manufacturers as well as to the utilities. Appliance manufacturers also have a deep concern in the Approval and Installation Requirements for Gas Burning Appliances, 24 of which have already received ASA approval as national standards.

The Trade Association which Mr. Rasch will represent on Standards Council includes some 209 member companies engaged in the manufacture for sale of gas appliances, accessories, apparatus, equipment, and supplies. Its purpose is to promote cooperation among its members for proper use and increased distribution of their products. To this end it collects and disseminates information of value to its members through a monthly publication. The Association also cooperates with the AGA and other organizations in providing exhibits of the products of its members. Through membership in the American Gas Association it furnishes its members with laboratory facilities for research and for testing their products.

Mr. Rasch will serve on the Standards Council of the ASA for a period of three years. Mr. Berghorn, also of the A.G.A.E.M. has been named as his alternate.

WHERE!

CAN YOU BORROW all existing standards for pipe?

IS there a German standard on sizes of ladies knit underwear?
CAN YOU GET Russian standards for metals —

Standards covering manufacture, inspection, and test of wall boards —

Standards for the relative hardness of floor marbles —

Paper sizes recommended by the International Standards Association?

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